

Proceedings of the Annual General Donald R. Keith Memorial Conference  
West Point, New York, USA  
May 4, 2017  
A Regional Conference of the Society for Industrial and Systems Engineering

## Dynamics of Urban Well-being

Jennifer Pena, Carolee Schwarzer, and Delainey Stokes

United States Military Academy

Corresponding author's Email: [jennipena23@yahoo.com](mailto:jennipena23@yahoo.com), [carolee.schwarzer@gmail.com](mailto:carolee.schwarzer@gmail.com), [akdelaineysue@gmail.com](mailto:akdelaineysue@gmail.com)

**Author Note:** We would like to thank our advisor, Dr. Bruce Keith, for the guidance and patience you provided for us throughout this project. You are an inspiration and we were fortunate to have your leadership and direction. Support for this project was provided by the United States Assistant Secretary of the Army for Acquisition, Logistics, and Technology (ASA(ALT)).

**Abstract:** The purpose of our study is to develop a model to estimate important dynamics within a modern urban environment, with respect to a population's well-being, that could be influenced by US military operations. We retrieved data from the Organization for Co-operation and Development, World Bank, and Trading Economics databases to validate our assumptions, variables, and model. The core dynamic of an urban environment is the balance of supply and demand, represented through the well-being of the society. Due to the complexities of well-being, this project focused on the economic dimension to model the urban dynamics. Our results indicated that military debt relief and military economic investment drive the recovery time of the economy from degradation. Expanding this model to include the three dimensions of well-being will increase applicability to future military doctrine. Further exploration is necessary to determine a realistic timeframe for the urban environment's recovery and military downsize.

*Keywords:* Urban Dynamics, Simulation Modeling, Military Operations